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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,796	08/19/2003	John J. Meyer	V203-0053(16447)	4793
27378	7590	07/09/2004	EXAMINER	
MACMILLAN, SOBANSKI & TODD, LLC ONE MARITIME PLAZA-FOURTH FLOOR 720 WATER STREET TOLEDO, OH 43604			ALI, MOHAMMAD M	
			ART UNIT	PAPER NUMBER
			3744	

DATE MAILED: 07/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/643,796	Applicant(s) MEYER ET AL.	
	Examiner Mohammad M Ali	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 August 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>08/19/03</u> . | 6) <input type="checkbox"/> Other: _____  |

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Phrase, "at least one coolant valve comprises a first three-way coolant valve and a second three-way coolant valve" makes the claim indefinite.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4-5, 8-12, 14, 17-18 and 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harte et al. (6640889). Harte et al. disclose a vehicle heating and cooling system comprising an engine 64 and a passenger compartment, at least one coolant loop having a coolant outlet line and a coolant inlet line adapted to operatively engage the engine 64, a heater core 44, a first coolant/refrigerant heat exchanger 67, a second coolant/refrigerant heat exchanger 70, and at least one coolant valve 65 selectively directing flow of coolant from the coolant outlet line to the coolant inlet line through at least one of the heater core 44, the first coolant/refrigerant heat

exchanger 67 and the second coolant/refrigerant heat exchanger 70; a pump 92 operatively engaging the at least one coolant loop; and a refrigerant loop having a compressor 72 with an inlet and an outlet, a first refrigerant valve 74 for selectively directing the flow of the refrigerant from the compressor 72 outlet to one of a condenser 76 and the second coolant/refrigerant heat exchanger 70, a first refrigerant passage 75 connected to the condenser 76 for directing the flow of the refrigerant from the condenser 76, through an expansion device 80 and to an evaporator 38 or to the first coolant/refrigerant heat exchanger 67, and a second refrigerant line 77 connected to the second coolant/refrigerant heat exchanger 70, through the expansion device 80 and to the first coolant refrigerant heat exchanger 67 or the heater core 44. Harte et al. disclose the invention substantially as claimed as stated above. See Fig. 1 and 2. However, Harte et al. do not disclose a second expansion device. Here one expansion device obviously meets the claimed invention. Regarding orifice tube for claims 5, 9, 24 and 25, orifice tube is well known device in refrigeration system. It is an obvious choice of an individual to choose orifice tube or other expansion device since there is no criticality or unexpected result from it.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1, 4-5, 8-12, 14, 17-18, 20-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harte et al. in view of Cho et al. (20020066278). Harte et al. disclose the invention substantially as claimed as stated above. However, Harte et al. do not disclose second expansion device. Cho et al. teach the use of first expansion device 15 and second expansion device 25 in a refrigerant circuit for the purpose of passing the refrigerant in two different ways. See Fig. 1. Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify the vehicle heating and cooling system of Harte et al. in view of Cho et al. such that first and second expansion device could be provided in order to pass the refrigerant in two distinct ways.

4. Claims 2 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harte et al. in view of Cho et al. as applied to claims 1 and 14 above, and further in view of Likitcheva (5,996,362). Harte et al. in view of Cho et al. disclose the invention substantially as claimed as stated above. However, Harte et al. in view of Cho et al. do not disclose one-way valve. Likitcheva teaches the use of one-way valves 6 and 8 in a refrigeration system for the purpose of directing refrigerant in one direction. See Fig. 1. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the vehicle heating and cooling system of Harte et al. in view of Cho et al. and further in view of Likitcheva such that one way valve could be provided in order to direct refrigerant in one direction,

5. Claims 3, 6-7, 13, 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harte et al. in view of Cho et al. as applied to claims 1 and 14 above, and further in view of Yoshihisa et al. (4,779,425). Harte et al. in view of Cho et al. disclose the invention substantially as claimed as stated above. However, Harte et al. in view of Cho et al. do not disclose an accumulator and four way valves. Yoshihisa et al. teach the use an accumulator 15 and four way valves 18 and 19 in a refrigeration system for the purpose of having a specific refrigeration circuit. See Fig. 2. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the vehicle heating and cooling system of Harte et al. in view of Cho et al. and further in view of Yoshihisa et al. such that an accumulator and four way valves could be provided in order to have a specific refrigeration circuit.

6. Any inquiry concerning this communication or earlier from the examiner should be directed to Mohammad M. Ali, whose telephone number is (703) 308-5032. The examiner can be reached from 6:10am to 4:30pm from Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Denise Esquivel, can be reached at (703) 308-2597. The fax number for the organization where this application or proceeding is assigned is 703-308-7764 for regular communications and after-final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.

  
Mohammad M. Ali

July 7, 2004